Gas Journal

VOL. 297. 111th YEAR. LONDON, MARCH 18, 1959 No 4992 PRICE 1/6

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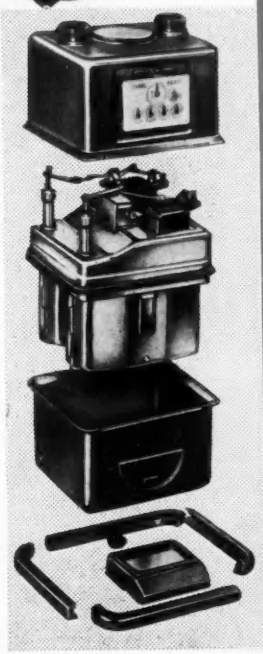

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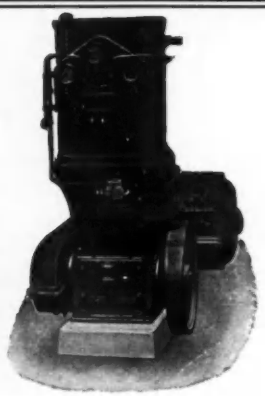

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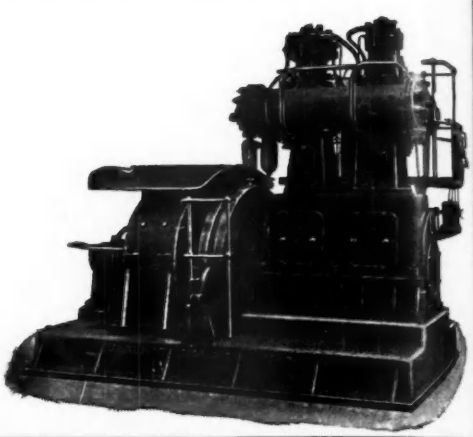

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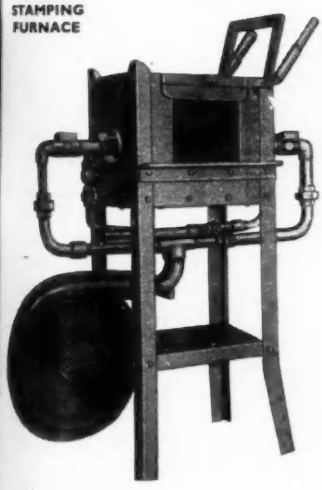

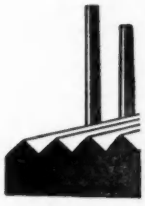

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111TH YEAR

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Gas Journal

VOLUME 297. No. 4992 MARCH 18, 1959. 111th YEAR

Mr. Therm Across the Colour Bar

IMAGINATION is a pretty rare thing even in those fields of public relations, publicity and advertising where one might expect such a quality to be commonplace. And, with the greatest respect to all concerned, it sparkles only occasionally in the gas industry's attempts to impress its message on the public mind. But at London's Building Centre on Monday evening there was an example of genuinely imaginative thinking which we hasten to put on record. The Gas Council set out to explore (exploit is hardly the word) the ticklish subject of immigrants' problems, in this case those besetting the West Indians settling in this country. By so doing they showed how a nationalised industry can rise above immediate and parochial matters of competition, etc., and play a part in deciding wider social issues. Enabling the gas industry to appear in this light must be accepted as very good publicity indeed, and a great deal of credit is due to the originators of the idea.

Where, the reader may ask, did gas come in? In point of fact it came in very naturally and strongly. As Sir Harold Smith pointed out, it provided several of the necessities of life in Britain, not the least of which was giving some semblance of the warmth which our coloured settlers had left behind them. And a gas service in old property permitted relatively easy conversion to a higher standard of hygiene, comfort and convenience. To help the theme along there was a display of typical English meals, kitchen equipment and gas appliances, and home service advisers to show how they worked. A model of the Gas Council's stand at the Ideal Home drew added attention to the gas story.

The essence of 'Living Together,' as the affair was called, was a short discussion sparked off by Mr. Julian Amery, M.P., Parliamentary Under-Secretary, Colonial Affairs, who was followed by four coloured speakers, with Mrs. Joan Robins, Home Service Adviser to the Gas Council, bringing up the rear, so to speak. The coloured speakers comprised a doctor, a bus conductor (who incidentally has taken our 3d. with great efficiency on a number of occasions), a charming and erudite nurse, and an engine-fitter's mate who works for the North Thames Gas Board. Guests included representatives of the Colonial Office and the British Council.

It was, as we have said, a difficult thing to tackle. In the first place, anything which deals with the colour bar is potentially dangerous, no matter how well-meaning may be the underlying motive. Then in gathering together a large number of coloured people the Gas Council was on strange ground, and one sensed a certain self-consciousness foreign to the aplomb with which this body customarily organises receptions. And in plugging gas more or less in the same breath as it dealt with broader moral issues, the Gas Council was laying itself open to accusations of rather questionable opportunism.

In the event everything went off well enough, despite a few snags. The white speakers were characteristically self-effacing, Mr. Amery making depreciating remarks about English cooking and Sir Harold falling back on the weather. The former made a cheerful reference to the suitability of gas for committing suicide, while the coloured doctor told a story about a fellow countryman who was gassed in his lodgings—two unfortunate references but typical of the sort of risks one runs with a party of this kind. In spite of this somewhat morbid note, however, gas emerged from the proceedings with considerable distinction. Again, there was a tendency to talk to the West Indians as though they had only landed the previous day, whereas most of them had been in Britain for some time and had acquired a considerable degree of sophistication. To what extent this may have changed their personal tastes is difficult to assess. The Gas Council tried to make them feel at home by providing steel band records and rum. Whether Mozart and Scotch whisky, or cool jazz and bottled beer would have been more in keeping it is hard to say!

We have dealt with 'Living Together' at some length because it seemed to us to be a thing well worth doing and an experiment which might be tried in various gas boards. (In fact, certain boards have made special provision for their coloured consumers, but not on such a sociological level.) There is little doubt that coloured settlers represent a significant potential gas load, a load

which can be won provided they are approached in the right manner. Finally, anything which helps to break the colour bar is to be encouraged, and—harking back to our opening remark—the way in which the Gas Council tcakled the job showed real imagination.

Central Laboratories

WE are publishing this week a paper by Mr. W. F. Thorne, Chief Chemist of the Southern Gas Board on 'The Development of a Central Laboratory,' in which he describes the organisation set up by his Board to carry out the necessary scientific services which form part of the technical background to any manufacturing industry. The publishing of this paper prompts us to ask ourselves what are the real functions of a central laboratory and down to what level of testing should it make itself responsible in production and quality control.

The tendency throughout industry today is to concentrate its organisation so that the volume of work carried out justifies expenditure on expensive machines and the employment of less highly paid operatives. Equally, where highly qualified experts are needed, they can exercise their influence from a central point by remote control. In the organisation described by Mr. Thorne, distinction is made between the two types of testing that have to be covered. There is first the hour by hour control of the production plant, which ideally would be carried out by preset instrumentation, or some form of electronic brain, but in actual practice is the responsibility of the works chemist. The results from these tests must be immediately available for effecting adjustments. Secondly, there is the testing, still routine, of the raw materials coming into the works, such as coal and oil, and the main products, gas, coke, benzole, tar, etc. Though gas must clearly be tested at frequent intervals at the works, daily samples of all products can be tested at greater leisure at some central point remote from the works.

In the Southern Gas Board, all testing of the secondary category is carried out at the central laboratory and the success of this arrangement depends almost entirely on good communications and reliable sampling. Naturally there are other duties which a centralised laboratory must carry out, such as the testing of samples for purchase of paints, lubricating oils, etc., and also development. This latter consists of investigations for the improvement of the efficiency of new and existing plant and responsibility for assistance to plant and production engineers in the starting up or the design of new plant. These latter functions are what we might consider as being traditionally the task of the central laboratory rather than the routine day to day testing of works samples.

To have combined so many functions under the one roof of his central laboratory is indeed a tribute to Mr. Thorne, but why have not other boards done it before? The answer lies, we think, in differentiating between an 'area' laboratory and a 'central' laboratory, and at the same time considering the relative geographical conditions and densities of population. Geography has made it possible for Mr. Thorne to amalgamate his 'area' laboratory with his 'central' routine testing laboratory. In other boards, several central laboratories might be set up in subdivisions of the board's area, necessitated by long distances and a multiplicity of samples. Two examples emerged from the discussion that followed the paper. The South Western and the West Midlands Boards both had one 'area' laboratory each, but probably several 'central' laboratories. The eleven works of the Southern Gas Board, and either their proximity to Poole where the central laboratory is situated or the excellent road communications in most places throughout the area have made possible the bringing in of samples in a steady stream according to a prearranged time-table. This in turn has allowed the best qualified technologists to be concentrated at Poole and expensive equipment to be fully utilised. It is probably fair to say that the cost of testing each sample has been reduced to a minimum.

S.G.A. to Retire

IT is only rarely that we devote space in our editorial columns to gas industry personalities and gas board appointments, but one item of news published on the opposite page can hardly be allowed to pass without comment. Speculation concerning the retirement of Mr. S. G. Aberdein, Commercial Manager of the North Thames Gas Board, has been rife for some time. It has now been announced that he will retire at the end of April, though whether this will mean a total break with the industry's sales affairs is not yet clear. Certainly the gas industry can ill afford to lose one of the outstanding sales executives of recent times, whose shrewdness and vision have played a significant part in bringing to the commercial approach of gas boards a measure of uniformity and in encouraging the production of certain important appliances. Much of this has been accomplished during Mr. Aberdein's chairmanship of the Commercial Managers' Committee, a body composed of quite autonymous components which depends for much of its success on the personality and imagination of its chairman. Mr. Aberdein is not, and never has been, a salesman; indeed, we would go so far as to suggest that he does not fully understand the mentality peculiar to that somewhat extrovert race. But as an architect of sales he has few peers and his far-sighted planning has done much to guide his Board through the troubled waters of post-war sales affairs. Although essentially a 'strong' man, Mr. Aberdein is not a lover of the limelight. Offhand we can only recall one paper (to the World Power Conference) of which he was co-author, and he did not turn up for the presentation of that! He is to be succeeded by Mr. T. V. Garrud, whose considerable experience has been predominantly 'industrial' in character and who is a walking recommendation for the G.L.C. apprenticeship scheme which celebrated its golden jubilee last week.

Translator Extraordinary

MR. BRIAN HILL, whose double life somehow permits him to be both Assistant Publicity Manager to the Gas Council and author of unusually sensitive translations of French poetry, has just added to his laurels. Following his translations of Rimbaud and Verline (not to mention his charming anthology *Pleasure Garden*), Mr.

Hill has turned his talents to interpreting a lesser known poet, Gérard de Nerval, an unhappy eccentric whose modest output was uneven in quality but contained a handful of gems. The result is a volume which probably represents an even more difficult task for the translator than Mr. Hill's previous works but which, in our opinion, provides less pleasure, except perhaps to those who have a particular interest in this strange poet. Nevertheless, the poems have about them a curious mysticism, an indefinable magic which Mr. Hill has caught with extraordinary skill. He himself quotes Roy Campbell's dictum that 'translations (like wives) are seldom strictly faithful if they are in the least attractive,' and this perhaps explains why, in his quest for a translation which will exactly mirror the subtlety of the poet's intention he has on occasion departed slightly from the rhyming form of the original. Entitled *Fortune's Fool*, this attractively produced volume is published by Rupert Hart-Davis, priced 9s. 6d.

Personal notes

MR. S. G. ABERDEIN is to retire as Commercial Manager of the North Thames Gas Board in April. Consequent upon his retirement, the following appointments are announced, with effect from May 1. MR. T. V. GARRUD, Controller of Services, to be Commercial Manager. MR. J. A. BUCKLEY, Commercial Assistant to the Commercial Manager, to be Sales Manager. MR. G. H. W. MADGE, Assistant Commercial Manager, to be Controller of Services, and MR. F. R. DARLING, Deputy Secretary to the Board, to be responsible for the building and property maintenance department, in addition to the estate department. He retains his secretaryship.

MR. JAMES FRANCIS RONCA has resigned from the Board of George Wilson Gas Meters, Ltd.

MR. J. H. DYDE, O.B.E., Deputy Chairman of the Eastern Gas Board, has been appointed Chairman of the Board in succession to SIR JOHN STEPHENSON, C.B.E. MR. F. T. BROOKES, M.B.E., Divisional General Manager at Tottenham, is to be Deputy Chairman. The new appointments are from May 1.

MR. ROBERT DOUGLAS BAIRD, has been appointed a director of Baird & Tatlock (London) Ltd., and of Hopkin & Williams Ltd. MR. R. T. BEASLEY has joined the B.T.L. Group of Companies as Personnel Manager. He has eight years' previous experience in personnel management, with Mobil Oil Company (Coryton Refinery) and, before that, with the Watford Division of the Eastern Gas Board.

MR. ALEXANDER M. DUNLOP, office manager of the Coatbridge and Airdrie District of the Scottish Gas Board, has retired after 46 years' service. Mr. George Keillor, District Manager, presided at a farewell presentation ceremony, at which gifts were presented by Mr. David Lambie, Station Engineer, on behalf of the employees.

MR. BARRY RICHARDS is to be representative of Sidney Flavel & Co., Ltd., in the area covered by the South Eastern Gas Board, from April 1. Since 1953, when he joined the company, Mr. Richards has been representative in the Wales Gas Board and West Midlands Gas Board areas.

MR. R. J. CHARD is to represent Wm. Whitehouse & Co., Ltd., gas fittings manufacturers, in the Midlands, Northern England and Scotland, in succession to the late MR. P. H. DANIELL. Mr. Chard has been associated with the gas industry for the past 13 years.

MR. D. D. BURNS, O.B.E., has been re-appointed Deputy Chairman of the Scottish Gas Board. MR. D. D. MELVIN has been re-appointed a member of the Board and LORD MATHERS a part-time member.

MR. J. WORTLEY, has been appointed Deputy Managing Director of R. & A. Main Ltd. Mr. Wortley, who was elected to the board as works director in 1958, first joined R. & A. Main Ltd., at their Falkirk works in 1948.

MR. HUGH TANNER, manager of Auchterarder District of the Scottish Gas Board for 20 years, has been appointed Assistant Service and Sales Manager to the Board's Alloa and Stirling Group.

Diary of forthcoming events

March 21.—WESTERN JUNIORS: Bath. Joint Meeting with the Wales & Mon. Association. Paper by Mr. G. Sherlock and a visit to the mechanised accounting offices at Sydney Wharf. 2.30 p.m.

March 23.—WEST MIDLANDS G.C.C.: Gas Offices, Edmund Street, Birmingham 3. Council Meeting at 2.30 p.m.

March 24.—INSTITUTE OF FUEL, SCOTTISH SECTION: Glasgow. 'Trend of Coal Production in Scotland over the Next Ten Years' by A. Thomson, preceded by annual general meeting. 7 p.m.

March 24.—INSTITUTE OF FUEL, MIDLAND SECTION: Lecture Hall, back of Glebe Street, Stoke-on-Trent. Joint meeting with the North Staffordshire Fuel Society. Paper on 'Methane Drainage' by D. C. Yates. 7 p.m.

March 25.—NORTH OF ENGLAND SECTION, I.G.E.: Joint meeting with Northern Juniors: Gas Showrooms, Tubwell Row, Darlington. Paper on 'Past, Present and Future' by W. R. Garrett. 2.30 p.m.

March 25.—YORKSHIRE JUNIORS: Victoria Hotel, Leeds. President's Day Luncheon followed by tour of Tingley Gasworks.

March 25.—INSTITUTE OF FUEL, LONDON SECTION: Great George Street, S.W.1. 'Investigational Work carried out by the National Coal Board's Scientific Control Organisation' by D. Hicks. 5.30 p.m.

March 25.—WALES & MON. JUNIORS, NORTH WALES SECTION: Meeting at Colwyn Bay.

March 25.—INSTITUTE OF FUEL, YORKSHIRE SECTION: Leeds. Annual general meeting. 2.30 p.m.

March 26.—NORTH THAMES G.C.C.: City Hall, Westminster. Council Meeting.

March 26.—INSTITUTION OF PLANT ENGINEERS, SHEFFIELD GROUP: Grand Hotel, Sheffield. 'Refractories' by T. R. Lynam of the Oughtbridge Silica Brick Co., Ltd. 7.30 p.m.

March 26.—INSTITUTE OF FUEL, MIDLAND SECTION: Stephenson Place, Birmingham 2. 'Coal Marketing and Associated Problems' by R. A. Howson. 6.30 p.m.

N.W. Board to take refinery gas

THE North Western Gas Board have entered into an agreement with the Shell Refining Company to take a minimum of 12 mill. therms of refinery gas every year for the next ten years from the Stanlow refinery near Ellesmere Port in Wirral. The agreement will take effect from mid-1960.

To implement it Shell will build a new treating plant at Stanlow and the Gas Board a new reforming plant at Ellesmere Port. After being reformed into town gas it will be pumped into the great Lancashire-Cheshire gas grid which links up all industrial centres between Birkenhead and Liverpool in the west and Manchester in the east, and supplies 80% of the Board's 1,825,000 consumers.

The gas to be taken under the agreement will amount to some 3% of the Board's whole present output, and could be increased to 24 mill. therms a year, equal to some 6% of the Board's output. This additional gas will have to meet the ever-expanding demands of Lancashire.

Enamel advisory service H.Q. opened in London

THE Vitreous Enamel Development Council opened new H.Q. premises at 28, Welbeck Street, London, W.1 (telephone: Hunter 2237) last week. Formed two years ago, the Council claim already to have succeeded in establishing minimum manufacturing standards among their members, and to have played a part in the improvements in the design and colour of a large number of domestic items used in kitchens and bathrooms.

The council are chiefly concerned with quality control, and claim that they have gone out of their way to inform the public about the advantages of high quality products with durable finishes, and to give considerable consumer protection.

Recently, an enamel advisory service was started in London to give a free information service to housewives and industrialists, to deal with the many problems encountered with protective coatings and finishes on domestic and industrial products.

This service has now been extended, and advisory bureaux now exist in Glas-Glasgow, Cardiff, Birmingham and Manchester. Yesterday, the Newcastle service was started and this will shortly be followed by a centre in Southampton. It is hoped to extend the service later on in the year, possibly to Belfast, Norwich and Aberdeen.

Scottish Board consider Dundee works' future

THE future of Dundee gasworks has been the subject of correspondence between Mr. Sydney Smith, Chairman of the Scottish Gas Board, and Mr. George Thomson, M.P. for East Dundee.

Mr. Thomson had drawn Mr. Smith's attention to alleged alarm among gas workers at the news that the Scottish Gas Board was considering closing the Dundee works.

Mr. Smith has replied: 'In view of the rapid technical developments within the gas industry, it is quite possible that our provisional plans may require to be amended between now and 1962-63, which was the provisional date for the possible closure of the Dundee gasworks.'

The Board considered that the time was not yet opportune for a discussion of matters of such an uncertain nature with the trade unions.

Gas produced by the Lurgi plant at the Scottish Gas Board's Westfield works in Fife was likely to be distributed to Dundee and through Fife.

Mr. Smith added: 'I must stress that in view of rapid changes taking place, it is quite likely that our present assessment may be altered quite radically during the next two or three years.'

NEW COUNCIL TO TEST AND APPROVE DOMESTIC SOLID FUEL APPLIANCES

THE Gas Council and the National Coal Board are to take over from the Ministry of Power responsibility for testing domestic solid fuel grates and stoves. A Domestic Solid Fuel Appliances Approval Council is being set up comprising representatives of the Gas Council, the N.C.B., the British Coking Industry Association, the British Ironfounders' Association and the Ministry of Power.

Testing of appliances will in future be carried out, under the auspices of the new council, at the gas industry's testing stations in London, Birmingham and Manchester; at the British coking industry testing station at Acton; and at authorised manufacturers' works. The new council will make special arrangements for testing any appliances designed primarily to burn bituminous coal.

The names of appliances approved from time to time by the Council will continue to be published in the list of domestic solid fuel appliances issued annually, with quarterly amendment sheets, by the Coal Utilisation Council and the Solid Smokeless Fuels Federation.

The Minister of Power, the Minister of Housing and Local Government and the Secretary of State for Scotland recommend that solid fuel appliances installed in new houses, or as replacements in existing houses, should continue to be selected from this list. In the case of smoke control areas established under the Clean Air Act, it will be a condition of the approval of local authority expenses for the payment of Exchequer contributions that new solid fuel appliances should be selected from this list.

Details of arrangements made by the council and the address to which manufacturers should apply for appliances to be tested, will be announced soon. For the time being testing procedure will conform broadly to existing arrangements.

Douglas Gas Light final dividend

PAYMENT of a final dividend of 9s. 8d. a share was sanctioned at the 124th annual general meeting of the Douglas Gas Light Company, Isle of Man, absorbing £5,831. An interim dividend of 7d. per share was paid last September requiring £4,165.

In his statement the Chairman, Mr. W. S. Waid, explained that the reserve fund had increased by £735 to £44,748, due to interest on investments. Fixed assets were less by £5,805 at £161,000, due to mortgage on foundry property being disposed of. The balance at the bank was £7,075, compared with £4,487, so that their liquid position was strong. Total assets were less by £6,538 at £240,635.

The cost of manufacturing gas was lower by £2,276 at £137,269, the reduction being attributable to less spent on repairs, and they were assured by their manager that it was not a case of deferment, but that he and his staff had been able to maintain the retort benches in a state of efficiency for much longer periods as the result of the new techniques introduced several years ago.

Sale of gas, residual products, etc., showed a decrease of £1,662, at £173,584.

The Chairman stressed the fact that the price had not been increased since April, 1956, in spite of the cost of coal, wages and all commodities used in the manufacture having risen appreciably in the meantime.

N.W. Board's record cooker sales

IN a special five-week drive the North Western Gas Board has sold 27,929 cookers worth just under £1 mill., a record for the Board. In the same five weeks last year 9,441 cookers, worth £330,000, were sold.

In the first 11 months of the Board's tenth financial year 82,507 gas cookers, worth approximately £2,900,000, have been sold. This compares with sales of 68,490 gas cookers, valued at £2,400,000, in the same period of the Board's ninth year.

REFRIGERATORS ESSENTIAL, SAYS MRS. BRADDOCK

'I BELIEVE that a refrigerator is a "must" for every home,' said Mrs. E. M. Braddock, M.P., at a combined exhibition of domestic refrigerators held in London by the Domestic Refrigeration Development Committee.

Opening the 1959 exhibition, Mrs. Braddock described the kitchen as the 'workshop' of the modern home in which a refrigerator was essential for the safe storage of perishable food. Later Mrs. Braddock saw many of the newest models and latest developments in domestic refrigeration.

Only 13% of British homes are equipped with a refrigerator compared with over 90% in America. But sales on the home market in 1958 increased by 60% on 1957—the highest percentage increase of all domestic appliances.

Local trade exhibition

East Midlands Gas Board Manager at Market Harborough, Leics., Mr. Peter Robinson, is canvassing local traders with a view to organising a trades fair to be held during the year. Last year he arranged a gas board exhibition in the assembly rooms and hopes to see the trades fair in the same building again.

Japan orders another British oil-gas plant

ONIA-GEGI PROCESS REPLACES OBSOLETE COAL GAS RETORTS

HUMPHREYS & GLASGOW LTD. have been awarded a second contract by Japan to build plant for the production of gas from heavy fuel oil.

Using the Onia-Gegi catalytic oil gas process, the plant—to be built at the Himeji works of the Tokyo Shibura Electric Company (Toshiba)—will produce 500,000 cu.ft. of gas per day. It will be commissioned at the end of 1959 and will replace obsolete coal-gas retorts. The gas will be used for heating processes used in the manufacture of electrical equipment.

Catalyst and special equipment, such as pneumatic and hydraulic control gear, will be supplied from the United Kingdom. The rest of the plant will be made in Japan by Humphreys & Glasgow licensees, Ishii Iron Works, Ltd.

Himeji is a large transport centre about 30 miles from Kobe, and has a population of 290,000. It is an important manufacturing town and a junction on the main railway line connecting the heavy industrial and shipbuilding centres on the main island of Japan.

Japan's first Onia-Gegi plant is being built by Humphreys and Glasgow in conjunction with Ishii, at Yaizu, 150 miles from Tokyo.

Salt mine becomes gasholder

THE Northern Gas Board have completed a scheme for storing about 10 mill. cu.ft. of gas in a former salt mine cavity 1,000 ft. underground at Billingham-on-Tees. The mine was formerly worked by Imperial Chemical Industries, Ltd., and 18 months ago, work began on converting it into an underground gas storage tank.

The cost of the work has been about £120,000 but a conventional type of holder would have cost about £500,000.

Higher pressure

Mr. W. R. Garrett, Chief Constructional Engineer, said the Board had not tried this system of gas storage before. During tests, 17 mill. cu.ft. of gas were pumped into the mine at a higher pressure than that normally employed, and later the amount was reduced to 10 mill. cu.ft.

INTERNATIONAL GAS UNION

THE International Committee of the I.G.U. on Statistics, holding its sixth meeting recently, recommended the proposal by another international governmental organisation to include liquefied petroleum gases in general statistics relating to gaseous fuels.

A more detailed investigation is to be undertaken to determine to what extent it would be possible to simplify statistics relating to unaccounted-for gas.

The committee forwarded a resolution to the President of the International Gas Union in which it expressed its desire that the practice of publishing its statistics at intervals of three years should be maintained.

Licence arrangement

Ashmore, Benson, Pease & Co. have recently concluded a licence arrangement with the Mond Nickel Co., Ltd., by which they are now in a position to supply S.G. or high ductile iron castings in accordance with British Standard Specification 2789/1956. As is well-known, Ashmores have, for 25 years, offered high duty iron castings made by the Meehanite process for a wide range of engineering applications and under the new arrangements they will be able to extend their foundry services even further by supplying grey iron, Meehanite iron and spheroidal graphite iron castings to the engineering industries in weights up to 25 tons in floor, loam, machine moulded and CO_2 moulded castings.

SCHEME PROGRESSES

The Scottish Gas Board's safety scheme, under which inspectors call at the homes of old and infirm people to check gas taps and appliances for faults, is making good progress.

In a letter to Lady Tweedsmuir, Aberdeenshire M.P., the Board's Secretary, Mr. A. Herd, said that the scheme was introduced in June, 1956, and throughout Scotland, in the period up to the end of January this year, 149,269 dwellings had been registered. All households had been visited at least once, he said, and some twice. More than 215,000 inspections had been made, as a result of which 160,844 appliances had been regulated and 223,314 taps adjusted, as well as other work being carried out as required.

Annual dance

Present at the annual dance of the Kilmarnock District of the Scottish Gas Board were Mr. E. G. Smith, Deputy General Manager of the Glasgow and South Western Division of the Board, and the Manager of the Kilmarnock District, Mr. J. Matheson. Mr. W. Gilchrist, Station Engineer, welcomed the company.

Board brings out new solid fuel strictly for coke-burning grates

THE North Thames Gas Board is now marketing under the registered trade name Gloco a specially-selected continuous vertical retort coke for use in gas-ignited solid fuel grates.

Gloco is not classed as a 'premium' fuel, and the Board stress that the indiscriminate selling of Gloco for use on old-fashioned stool-bottom grates must be avoided. Neither must the public be led to believe that it is a substitute for Cleanglow, which, of course, will burn in any type of grate.

Confidently recommended

In smoke control areas where gas-ignited coke grates are adopted as the standard installation, Gloco can be confidently recommended, and on such appliances can offer, in terms of useful heat, cheaper room heating than can be obtained with other forms of solid fuel.

With local shortages of premium fuels, users have to rely on gas cokes. To many people, coke is just coke, and without doubt unsuitable grades and types have been ordered and sold for open-grate use. Consequently coke in such cases has tended to get itself a bad name, and the prejudicial effects have been felt by householders, distributors and producers alike.

In view of this, the decision of North Thames to market Gloco and to make it available specially to domestic consumers is certainly a step in the right direction, and can be regarded as a good example of co-operation between producer and distributor to the advantage of the consumer.

Gloco will be available through normal channels within the Board's area of coke distribution. Broken coke for general purposes will, of course, still be available, but none of this coke will in future be sold by the North Thames Gas Board as 'open fire coke.'

By name

Every opportunity will be taken by the Board and its authorised distributors, by means of posters, showcards, correspondence and accounts stickers, to educate the public to ask for Gloco by name instead of just open fire coke. By this means it is hoped that the use of coke for the open fire market will obtain an increasing measure of popularity, and will at the same time make a valuable contribution to the needs of smoke control areas.

North Thames Board celebrates 50 years of apprenticeship

DESCRIBED by Sir Ian Horobin, Parliamentary Secretary to the Ministry of Power, as 'one of the earliest and most imaginative training schemes in the country,' the North Thames Gas Board's fitters apprenticeship scheme celebrated its golden jubilee on March 10. Sir Ian was guest of honour at a lunch given by the Board at Imperial House, Fulham, following an inspection of the training shops and lecture rooms.

He was welcomed by Mr. Michael Milne-Watson, the Chairman of the Board, who pointed out that the initial credit for the scheme belonged to Sir Corbet Woodall and the senior officers of the Gas Light and Coke Company in 1909, especially Sir Francis Goodenough who himself studied in the evenings at the Regent Street Polytechnic. 'We believe that our training scheme was the first established by any commercial undertaking to incorporate day release in addition to shop floor training. In making this claim, we have the support of a London County Council Report of July, 1908,' said Mr. Milne-Watson. The faith of the pioneers had been justified by the scheme's subsequent progress—for the past 30 years in the hands of Mr. R. N. LeFevre, the Board's Training and Education Officer.

Healthy spirit of rivalry

The first intake of twenty lads had now become three intakes annually, each of up to 50. Where there was formerly one training shop at Westminster, there were now three (at Imperial House, Fulham, East Ham and Slough), and there was a healthy spirit of rivalry between them. The training had been adapted to meet the changes in domestic appliances and new requirements, following their entry into the industrial field. The gas fitter had become a skilled mechanic.

They realised that their success could not have been achieved without co-operation from a number of directions. They owed a great debt to the London County Council and to the Westminster Technical Institute, which was their close ally for 36 years. More recently, their boys have been instructed at the colleges at Hammersmith, Paddington, East Ham, Slough and Southend. There had been a good understanding also with their examiners, the City and Guilds, since their foundation in 1879 on the basis of seven subjects, one of which was gas fitting.

Four of the first batch of 1909 apprentices who were present at the Golden Jubilee celebration last week. In all nine men who were apprentices 50 years ago attended the function at Imperial House.

Qualification by public examination had long received the strong backing of the Trade Unions. Of recent years, the nominee of the unions' side of the Area Joint Industrial Council has been appointed to the City and Guilds panel of gas fitting examiners. Even more recently, the Unions forming the Confederation of Shipbuilding and Engineering Unions had also co-operated with the Board—in re-shaping the training undertaken by the craft apprentices.

'I am proud to think that the boys going through our apprenticeship scheme have as good a chance as any other boy,' concluded Mr. Milne-Watson.

Mr. Fred Hayday, National Industrial Officer of the National Union of General and Municipal Workers, referred to the occasion as a 'wonderful milestone' and paid tribute to the establishment of a standard qualification and a hallmark of craftsmanship second to none which was carried with pride by people throughout the industry.

Many guests

Other guests included Mr. Owen Francis, Under Secretary to the Ministry of Power, Sir Henry Jones, Deputy Chairman of the Gas Council, Mr. A. A. Part, Under Secretary to the Ministry of Education, Major General C. Lloyd, Director of the City and Guilds of London Institute, representatives of various trades unions and educational officials from several technical colleges.

Eight young men, all winners of the Dieterichs shield, represented apprentices still under indentures with the Board, while the original 1909 vintage was represented by nine former apprentices, 'survivors' from the first days of the apprenticeship scheme. One of the latter, Mr. F. J. Holman, paid a spirited vote of thanks to the Board and recalled some of the less official aspects of those early days.

Steady flow of fitters

The purpose of the scheme was to provide a steady flow of skilled gas fitters, and also to give them the chances and prospects of advancement to higher posts as foremen, district inspectors, etc., as well as positions on the commercial and technical staffs of the gas industry. That the scheme has worked well is evident from the fact that, under it, well over 3,000 apprentices have been fully trained, and that some now hold high executive positions on the Board's staff. One ex-apprentice, Mr. T. V. Garrud, is at present the Board's Controller of Services, and is shortly to take over the post of Commercial Manager—a position formerly filled by Sir Francis Goodenough, one of the originators of the apprenticeship scheme.

Tradition of family service

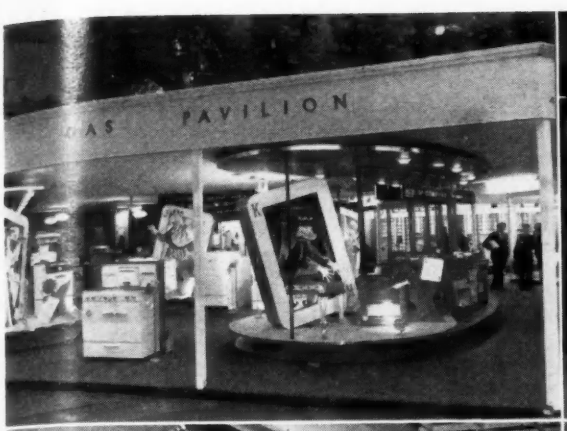
The wages of those first apprentices back in 1909 was half-a-crown a week, just the hourly rate of a lad of 17 today. Quite a large proportion of the apprentices right through the past 50 years have been sons of existing Board's employees—a strengthening of the robust tradition of family service with the Board, still very much in evidence today.

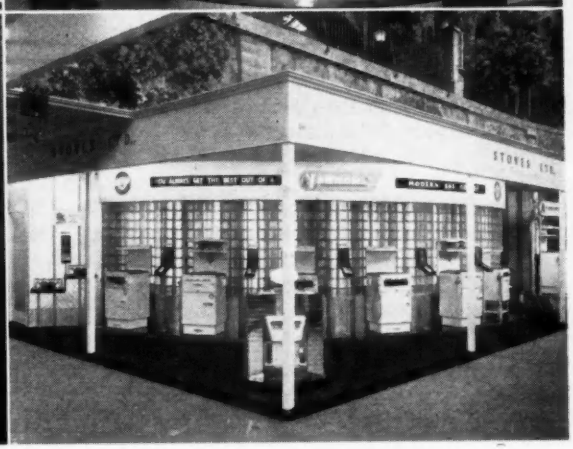
In addition to gas fitting, the Board also takes on certain numbers of apprentices in fifteen skilled trades, and these lads too, receive the same thorough training and conditions of service so that, at the finish of their indentures, they are fully trained and competent craftsmen.

Admiring the exhibition of apprentices' work are, left to right, Mr. Fred Hayday, National Industrial Officer of the N.U.G.M.W., Mr. Michael Milne-Watson, Chairman of the North Thames Gas Board, Sir Henry Jones, Deputy Chairman of the Gas Council, Mr. R. N. Le Fevre, the Board's Training and Education Officer, and Sir Ian Horobin, Parliamentary Secretary to the Ministry of Power.

Scarborough trade fair

The North Eastern Gas Board, who had a very attractive stand at the annual Hotelescope and Trade Fair held in Olympia, Scarborough, from February 25-28, gave cookery demonstrations, installing a different cooker each day.





IDEAL HOME EXHIBITION STANDS

THE graceful theme of the Grand Hall scheme at the current Ideal Home Exhibition is—'the Heart of England.' The stands have been built as cottages to form the likeness of a Cotswold village. Other attractions include 'Fare Play,' the Radiation play which has toured in many boards' areas.

Mr. Therm's Five Card Trick—the main theme of the Gas Council's display—has familiar figures stepping out of giant playing cards. Thus *ace high* is space heating, the display including details and diagrams of some of the newest developments in whole house heating and warm air, and then come the *king* of water heating, the *queen* of good cooking, the *jack* of all home laundry tasks, and finally *ten* makes the trick—refrigeration for pure, clean food. In addition, a complete section of the Gas Council's stand has been devoted to showing some of the latest coke-burning appliances in a home setting.

Our top four pictures show: *Top left:* A general view of the Gas Council's exhibit, showing the playing card theme. *Top right:* (Left) Sir Henry Jones, Deputy-Chairman of the Gas Council, with Mr. S. G. Aberdein, Commercial Manager, North Thames Gas Board and (by cooker) Mr. V. W. Stanton, Commercial Manager, South Eastern Gas Board. *Below left:* Mr. Therm's home laundry demonstrations are a big attraction. Here is one about to begin on an automatic gas/electric washer. *Below right:* The attractive stand of Stoves Ltd.

At the foot of the page are left, the ingenious Radiation stand, and right, the easily-toured Parkinson Cowan exhibit.

From a paper to the London and Southern Section of the I.G.E., February 17.

Development of a Central Laboratory

By W. F. THORNE, B.Sc., A.R.I.C., M.Inst.Gas E.,
CHIEF CHEMIST, SOUTHERN GAS BOARD.

ABOUT three years ago the Southern Gas Board accelerated its plans to centralise as many functions as were possible and profitable so to do; as part of this policy it decided that as much routine laboratory work as possible should be carried out at a central laboratory.

Although Poole is not geographically in the centre of the Southern Gas Board's area, it was here where the site for the central laboratory was chosen because a building was available which could be conveniently modified. Poole was also the largest gas works in the Board's area at that time and had the largest chemical staff to provide a nucleus for the central laboratory. The building chosen was part of the hydrogen plant erected in 1940 to supply hydrogen to the Balloon Command and originally contained four cast iron oxide purifiers. At the end of the war the building was made available to the Gas Research Board and many of Dr. Dent's team worked there for a number of years. The building was such that laboratories could be made on two floors and there was adjacent to it a single storey building which could be made suitable for the preparation of coal and coke samples.

Quiet Room

In the new central laboratory, the first floor is devoted almost entirely to the main analytical laboratory, at one end of which some existing small rooms are being used as a balance room, a bomb calorimeter room, a gas analysis room and a store room. At the other end of the laboratory is the office section comprising private offices for the chief chemist and the chemist-in-charge, a general clerical and typing office and a large room which can be used for meetings or to provide a quiet place where staff may write reports or make calculations. Provision is made in this room for the display of journals and technical books, since the Board's central technical library is at headquarters at Southampton.

The ground floor of the main building houses a number of small specialised laboratories; these are:

The lubricating oil laboratory. A long narrow room conveniently holds all the apparatus required for the testing of lubricating and transformer oils against Gas Council specification.

The instrument laboratory. Here are provided the means to calibrate instruments which are in use in works laboratories and in works plants. No repairs are carried out, since it is the Board's policy that these should be undertaken by manufacturers, and only cleaning and overhauling are included as part of the service needed before calibration. A darkroom is provided for the calibration of optical pyrometers, photographic and other work, and it has been used extensively for the developing of films used in the gamma-ray examination of welded joints.

The tar and benzole laboratory. Here is housed the equipment needed for the routine testing of tars and benzoles to agree with the purchasers the quality on which payment for sales is based. It also contains other apparatus needed for the examination of tars and benzoles, and for the routine examination of gas and fuel oils. Recently has been added the equipment for the analyses of light virgin naphtha—light distillate—which the Board is now using in large quantities.

The development laboratory, which is primarily for non-routine and investigational work.

The refractories laboratories consist of three rooms first, a small physical laboratory where microscopic examinations can be made, and the specific gravity and porosity of refractories can be measured. Second, a sample preparation and storage room, housing a saw, grinding wheels and shelving for the storage of samples. Third, the refractories furnace laboratory, where are installed the furnaces and other apparatus needed for the carrying out of all the tests according to the Gas Council's specifications.

The coal and coke sample preparation room. The main portion of the single storey annexe is devoted to apparatus for the preparation of coal, coke and ash samples for analysis. It also contains an automatic coke sieving machine used for the routine examination of coke samples, and at one end are two rooms, one for the storage of samples and the other for coal and coke moisture determinations on the 'as received' basis. A direct-reading balance, accurate to 2 g. with a load of 5,000 g., is an invaluable aid to speedy weighing. At the other end of the main room is the coke fire testing laboratory containing two standard Fulham grates. It is our intention ultimately to install in the spare store room, boilers suitable for the testing of No. 3 coke.

Store. An adequate supply of apparatus and chemicals is kept. Works laboratories are also supplied from this store so that advantages of bulk purchasing of apparatus can be achieved.

Samples Van

An important item for the successful operation of the central laboratory function is the van which collects samples from the principal works laboratories. The vehicle is an Austin BMC 1-ton van with a 2.2-litre diesel engine. The average consumption of fuel is 35 miles per gal. The vehicle travels on an average about 1,000 miles per week, and it is interesting to note that

during 54,000 miles covered to date the drivers of this vehicle have not been involved in any accident whatsoever. In addition to carrying out the normal requirements of the central laboratory, the van is used to convey parcels, meter books, fuel pumps and injectors, transport spares and many other items to depots covered by its intineries. These itineries are:

Mondays; Poole, Newbury, Oxford, Reading, Camberley, Southampton, Poole.

Tuesdays and Thursdays; Poole, Aldershot, Hilsea, Southampton and Poole.

Wednesdays and Fridays; Poole, Reading, Camberley, Southampton and Poole.

Even if the central laboratory had been established at Southampton, which is nearer than Poole to the Board's centre of gravity, there would have been no reduction in the mileage covered by the van because Poole works would have to have been visited daily.

Routine Tests

In order to plan the staff required and the facilities to be provided by the central laboratory, each regional production engineer supplied the chief chemist with a list setting out the number and frequency of the routine tests required for each of the materials which would be sent to the central laboratory for testing. These are now considered in more detail.

Coal. Most of the coal received by the Board is sampled by independent analysts during loading at the collieries or seaport, and analysed in their laboratories. This is desirable since many seaborne consignments consist of mixed cargoes and without analysis in the north of England, it would not be possible to test the individual types of coal. Occasionally special consignments of coal are received, for example, foreign coals which are sampled at the receiving works and sent to the central laboratory for analysis.

Each works samples, over weekly periods, the coal being delivered to each major carbonising unit; the analyses of these samples are carried out in the central laboratory, and the results used in the interpretation of works operating results.

Gas and fuel oils are sampled by works laboratories on the basis of one composite sample for every ten parcels received or per week whichever is the more frequent. Gas oil is tested for specific gravity, boiling range, and the Griffin evaluation number, and fuel oils for specific gravity, viscosity and carbon. Gas oil samples are also subjected to a cracking test, the object of which is to estimate the optimum C.W.G. plant temperatures. The test is based on observing the temperature at which neither carbon nor naphthalene appears, and at which the tar formed is lightest in colour and easily separated from water. A temperature range of 50°F. covers all these features and has always coincided with the actual plant temperatures needed.

Virgin naphtha is sampled on the basis of one composite sample from ten separate consignments or per week whichever is the more frequent. It is bought to a specification, and tests on it include those for specific gravity, initial and final boiling points, calorific value, sulphur and the lead content. This last is of particular interest, since deterioration of the catalysts might occur if the virgin naphtha contains an excess of tetra ethyl lead, and it is made necessary because the road tanks and the pipelines used for their filling might be contaminated by anti-knock substances. Separate individual samples are also taken for the determination of Reid vapour pressure.

Gas. Although the works laboratories make analyses or partial analyses of gases for their day to day control purposes, average samples collected over mercury for 24 hours are sent to the central laboratory and analysed to give a more complete picture of the properties of the various gases.

The samples are analysed in a Bone and Wheeler apparatus based on the design of the Midlands Research Station. From the analyses of town gases are calculated the Wobbe index and the flame speed factor as described by Gilbert and Prigg in GC.35. In this way a control may be kept over the combustion characteristics of a particular gas remaining satisfactory.

The values of ' x ' and ' n ' are watched and collated, and advice given to the sales and service, or the industrial gas departments, when any major change in gas composition is occurring or when the interchange of one gas by another following integration, might give rise to difficulties.

The Board is now making many new types of gas, for example, by reforming refinery gas in water gas or catalytic plants, by reforming light virgin naphtha in water gas or catalytic plants, by gasifying heavy oil in catalytic plants. Much useful information for plant control is being derived from the complete analyses of these gases.

Coke. The routine checking of coke quality presented something of a problem in the planning stages. To sample according to B.S. 1017 for some of the qualities of coke being produced, it would have involved gross samples weighing up to several hundredweights, and the number of test points to be covered, would have made the quantities to be carried too great. Eventually, we decided to collect samples (or sub-samples) of approximately 20 lb. in weight (made up of 2½-lb. increments taken from 1-cwt. sacks), which could be carried in tins suitable in size for transport in our particular sample van. The results of moisture and grading tests are reported on at least a monthly basis and therefore refer to at least 160 2½-lb. increments.

A statistical survey of the results obtained in this way over periods ranging from a few months to a year, has enabled us to assess the value and the significance of our results. A summary of the levels of accuracy achieved are given in Table 1.

TABLE 1

Type of coke	Property under consideration	Calculated range which contains 95% of all observations	
		Maximum	Minimum
No. 2	% between 2 in. and 1 in.	± 1·66 units %	± 0·56 units %
No. 2	% Moisture	± 1·38 units %	± 0·25 units %
No. 3	% between 1¼ in. and ¼ in.	± 1·46 units %	± 0·24 units %
No. 3	% Moisture	± 1·53 units %	± 0·33 units %

Fire performance tests are carried out monthly and therefore also represent a gross sample containing about 160 2½-lb. increments. The order of significance of the results of their interpretation makes such data quite satisfactory for works control. Some details of the methods used for reporting coke analyses are given

later in the paper. A summary of the sampling and testing arrangements for coke were shown in appendix 1 of the paper. It is our intention ultimately to install suitable domestic boilers so that the properties of No. 3 coke can be suitably assessed.

Tar sold is sampled under the supervision of the works laboratory staff on the basis of one increment per type of tar per vehicle and these are compounded on a daily basis and tested by the central laboratory for moisture content and specific gravity. Each week the chemist-in-charge of the central laboratory agrees the weight, specific gravity and moisture content with the purchasers and then the necessary information for invoicing purposes, is given to the cost department.

Benzole is sampled as sold by the works laboratories and monthly or bi-monthly samples compounded from increments and tested for all those factors which are involved in the calculation of the selling price. These figures together with weights of parcels are agreed with the purchasers by the chemist-in-charge and provide the basis for invoicing. Analysis of crude benzole for plant control purposes is carried out by the works laboratories.

Spent oxide. All oxides discharged are sampled, and sent to the central laboratory for analyses, covering as a general rule, sulphur, moisture, tar and *p*H value. Parcels of oxide ready for use are also sampled and tested. Parcels of spent oxide sold are also analysed and the chemist-in-charge of the central laboratory agrees with the purchaser the analysis on which invoicing can be based. Recently duplicate sampling of spent oxide has been carried out to determine whether or not sampling procedures are adequate, and the results of this survey have been extremely good. Details were shown in appendix 2 of the paper.

Not Satisfied

Ashes. Regular samples on a weekly basis, of the ashes from producers, boilers and water gas plants are sent to the central laboratory and are simply tested for combustible matter. The sampling of ashes is not an easy matter in many cases and particularly where there is a wide size range and where fused clinker is admixed with smaller sized material containing combustible matter. We have studied the problem from many points of view but are not yet convinced that our sampling methods are completely satisfactory. The results, however, are fairly consistent.

Refractories will be sampled and tested according to the Gas Council's specification in anticipation of each major re-setting programme. The installation by the Board of a number of oil gasification plants is leading us to take an interest also in the refractories, including catalyst bases, used for these plants.

Lubricating oils and paints are being purchased centrally and sampled and tested against the Gas Council's specification. Since four gasworks and several holder stations are in maritime positions where special corrosion problems arise, special attention has to be paid to paint used externally at these places.

Transformer oils. The oil in use in every transformer is tested every three months for dielectric strength and renewed if this falls below 40 kV. All purchases of new transformer oil are checked against B.S. 148.

Non-routine tests. Activity in the central laboratory so far as non-routine tests are concerned is very wide and varied, and a large proportion of it is concerned with the analysis and identification of unknown substances which have given trouble in one way or another. Some work has been concerned with the Griffin anaerobic effluent treatment plant.

A number of surveys have been made of dust deposition around gasworks, and many observations of the density of smoke from chimneys. A simple apparatus has been devised to eliminate the disadvantages of the normal Ringelmann test. The effect of redeclaring the calorific value of town gas at 500 B.t.u. per cu.ft. is at the moment engaging our attention to see what sort of effect this change would have on appliances already set for 475 c.v. gas. The Board's policy to dry all the gas being supplied has brought about a considerable amount of testing on behalf of the Ministry of Power to ensure the continued dryness of the gas after distribution in low pressure systems. All this work has fallen on the central laboratory.

Gasholder Water Tests

Recently the Board has decided that the water in each of its 135 gasholders should be subjected to a fairly complete analysis once a year and this represents a considerable addition to the central laboratory's work. The need for making observations of the odour level of our town gases has been brought about by the large number of new types of gases from varying raw materials which the Southern Gas Board is now producing. Consequently, an odorimeter has recently been constructed on the basis of the Watson House apparatus described by Deadman in GC.59.

An observation was made that naphthalene considerably modified the viscosity of tar produced in catalytic plants. The phenomenon was investigated and led to a means whereby pumping difficulties were reduced. When refinery gas was first used at Southampton some difficulties were experienced in an industrial furnace because carbon deposition occurred in the immediate gas inlet. The central laboratory investigated the deposition of carbon by pyrolysis of this particular gas and suggested conditions which eventually overcame the difficulty.

The work of the central laboratory is divided into seven groups each under the charge of a group leader responsible to the chemist-in-charge who in turn is responsible to the chief chemist.

1. The coal and coke group is responsible for the sample preparation and analysis of coal, coke and ashes.

2. The general routine analyses group is concerned with the routine analyses of gases, spent and new oxides, effluents, waters, liquor, sulphate of ammonia and other substances. It also prepares all standard solutions and gas analyses solutions for all works laboratories.

3. The oils and paints group carries out the routine testing of tar, benzole, gas and fuel oil, lubricating oil, transformer oil and paint.

4. The refractories group.

5. The development group. The work of this group includes (i) the development of new analytical procedures, (ii) the analyses of deposits and materials of that nature, (iii) the physical and chemical investigation into unusual occurrences at gasworks, and (iv) investiga-

tional work arising from new methods of gas production, purification and utilisation.

6. The special works investigations group, now in its infancy, is designed ultimately to be able to carry out plant observations in the nature of a guarantee or performance test. It has been concerned in the past with large-scale investigation of effluent problems and is also concerned with such matters as air pollution and dust fall-out. It would be concerned with the development of any pilot plant which the Board may install.

7. The instrument group is mainly responsible for the calibration and routine checking of all instruments which are used in works laboratories and on the plants. We have in mind the regular checking of optical pyrometers, of calorimeter meters, of plant and laboratory thermocouples and pyrometers, and a suitable card index is being prepared. The group maintains a stock—largely collected from closed works—of calorimeters and accessories which serves the needs of the works laboratories.

The total staff of the central laboratory is 31, made up of 28 scientific and technical staff and three clerical. The scientific and technical staff comprises six qualified chemists and 22 non-qualified assistants of whom eight are females. The works laboratories staffs total 21 so that the grand total of all scientific and technical laboratory staff for the entire Board is 49.

Following an idea put forward by the South Eastern Gas Board we have collaborated with the local Grammar School by inviting sixth form students to carry out in the school laboratories simple investigations of a non-urgent character. We supply the apparatus and chemicals if necessary and have by this means fostered an interest in the gas industry which we hope may be useful in helping recruitment.

Comparison of Results

We consider that the examination of the information which the central laboratory provides is a matter of major importance and all routine tests are reported on standard forms by the chemist-in-charge to the production engineer, the chief chemist, the regional production engineer, the works superintendent, and the works chemist. Non-routine reports are made to the chief chemist and the destination of these reports is a matter for his discretion. In addition to the individual reports, there is a monthly summary of routine work which enables those who wish to take a wider view to see at a glance the general picture and particularly to compare easily the results of one works with another. The works laboratories make a separate report monthly, which summarises all their routine tests and so provides the complement to the central laboratory's monthly report giving together a full comprehensive picture of all routine laboratory work. The mechanics of providing many copies of each report and to disseminate them to all those having an immediate interest is a major task and we have found that the matter is more easily dealt with by making as many legible copies as is reasonable on a typewriter and then to produce photographs of extra copies.

We realise that however good the technical work of a laboratory, much of its value can be lost if the reporting of the results is unsatisfactory. Often, with routine work, a single result is of little value, and we are contemplating the use of graphical reporting to supplement normal reports. This would have the advantage of indicating statistical limits in an easily assimilable form.

At the moment, apart from giving the bare analytical results, we strive to give interpretations of the results. For example, with coke grading and moisture tests, we estimate the proportion of coke which is outside certain desired limits.

Chemists' Committee

Although the chief chemist has executive authority over the central laboratory, his relation to the works laboratories is advisory only. The matter was considered in some detail, and it was thought proper that the works chemist should come under the immediate authority of the works superintendent so that the hour to hour instructions for planning and testing which are necessary in works control could be met with the minimum of delay. Liaison is, however, provided by a chemists' committee which meets monthly and which is composed of the chief chemist, the chemist-in-charge of the central laboratory, and the works chemists of the principal gasworks. The opportunity which this committee provides for interchange of ideas and experiences is invaluable. Each month the works chemists can meet together and mutually discuss their problems, and each can discuss relevant matters with the chemist-in-charge of the central laboratory, and difficulties regarding sampling and interpretation of results can the more easily be resolved.

The chemists' committee provides the opportunity to ensure that all routine testing at the various works is on the same basis, and that the methods are correct. To this end we have produced something similar to the Watson House procedures so that the assistants in each of the works laboratories can be sure of using not only the correct, but also the same method as the other laboratories.

The cost of the service which the central laboratory provides is equivalent to £1 18s. 9d. per average routine sample. In this cost is included all the expenses in connection with non-routine testing, and this is quite appreciable. A breakdown of the £1 18s. 9d. is as follows:

	£	s.	d.
Wages		4	5
Salaries	1	1	11
Travelling and subsistence		1	4
Sample van		1	5
Materials and equipment		7	10
Repairs and maintenance		1	4
Sundries			6
Total	£1	18	9

After a year or so's operation of this centralised testing we are now, I think, in a position to assess its value. If we look only at the labour employed for testing both in the central laboratory and in the works laboratories, we shall see little if any diminution of total staff compared with the period of decentralised testing, but we have to bear in mind that we are now getting a more satisfactory laboratory service than before; we have much greater knowledge of what is happening in our gas-making and ancillary plants, and

are able therefore to exercise a far greater control. This is due in no small part to the fact that a central laboratory can be equipped with fairly expensive apparatus which could not be justified at individual works laboratories. In addition, such apparatus can work at a much higher load factor, and accuracy is improved by repetition. The testing associated with the centralised purchase of refractories, lubricating oils and paints, is a new activity, and it is difficult to assess the financial value of it.

DISCUSSION

Mr. E. T. Pickering, Area Chief Chemist, West Midlands Gas Board, said that to compare the functions of the Southern Board's laboratory with those of the West Midlands Gas Board showed considerable differences between the two areas, for example, there were 11 works in operation in the Southern Board, compared with over 50 in the West Midlands. There was a great difference in the relative size of the works. In the West Midlands the four large Birmingham works produced 40% of the total gas made—the other 50 works produced only 60% between them. Because of the size of the Birmingham Division it had a divisional central laboratory which naturally had some impact on the work of the area laboratory. Nevertheless, the similarities of the functions of the two laboratories were more striking than their differences. Among these were the laboratory van and monthly meeting of the chemists' committee, both of which he regarded as indispensable.

In setting up an area laboratory some of its functions were obvious, *e.g.*, those for which equipment was very expensive as in the work of refractories' testing, but one of the most difficult decisions to make was its functions in relation to those of the works laboratories.

Mr. Thorne's broad plan had been to send to the central laboratory those samples where no immediate action had been required from the results of an analysis. The staffs of works laboratories should, in his opinion, be left as free as possible to carry out those duties directly connected with operational control. Though perhaps a slightly different way of looking at the problem, it was in practice a similar division of work.

One major difference in the work of the two central laboratories was in coal testing, caused by the different ways in which coal was transported in the two areas. In the West Midlands some 200 different varieties of coal were received, both rail-borne and road-borne from Yorkshire, Nottinghamshire, Derbyshire, and Staffordshire. Many of the coals came into Birmingham and individual wagons were sampled by an automatic sampler installed at the central test works, which was also under the control of the area chief chemist. To test coals that did not come into Birmingham, a Land Rover vehicle had been purchased and would be operated by a trained sampler, who would visit works according to a schedule devised to ensure representative sampling throughout the area.

The frequency of sampling and the bulk represented by a sample was of interest. Gases for complete analysis were sampled over periods of 24 hours, and the results were used for the calculation of combustion characteristics. Here was a case where the variability encountered by a customer should be known, and spot samples, or samples taken over a much shorter period would seem to have provided information of greater value. The same applied to coke testing.

A further advantage of a central laboratory was that the appointment of staff of higher calibre was justified. It was available to assist with the Board's problems and to participate in the wider sphere of work carried out in the industry, *e.g.*, by the various technical committees of the Gas Council. The establishment of a central laboratory assisted in the recruiting of suitable people for technical staffs, and could provide a wide experience for young people studying for qualifications, as long as juniors were moved from section to section at reasonable intervals of time. In the West Midlands laboratory juniors were not engaged in one section for more than six months at a time, and in the course of two or three years might pass through six or more different sections. It was important that a suitable interchange of junior staffs should be arranged between the area laboratory and adjacent gasworks. This was helpful both to the area staff and to the works staffs. It was bound to have an impact on the staffing both of works laboratories and the method of recruitment and training of gas engineers. In the past boys of grammar school education generally worked for some years in the laboratories while studying gas engineering before passing on to engineering staffs. The present tendency was for engineering staffs to be recruited from boys leaving school who would pass on to training and sandwich courses without taking any effective part in laboratory work. It seemed that chemical staffs would, therefore, have to be more self-contained than ever before. Since much of the work was of a simple routine nature, it did not justify the employment of boys and young men of higher education. It would be necessary, therefore, to rely upon laboratory technicians to carry out the bulk of the routine work, the source of recruitment for whom would be boys leaving Secondary Modern schools at the age of 15; in effect craftsmen of the laboratories. Clearly they would have to receive a thorough training and would be expected to obtain an appropriate certificate of the City and Guilds of London Institute, or alternatively an Ordinary National Certificate in chemistry. Chemists employed in the laboratories would be fewer in number, but better qualified than has usually been the case. Their duties would be to supervise the activities of laboratory technicians, to interpret data for the engineering staffs, and to take a greater share in the control of gas manufacturing and purification processes.

Dr. M. J. F. Olden, South Western Gas Board, said that in the S.W.G.B. their interpretation of the function of the central laboratory was obviously very different from the one that has been set up in the Southern Gas Board. In fact, the only point of similarity between the two was the occurrence of the two words, 'Central Laboratories' in the postal address.

They did not undertake any routine tests whatsoever for any works in the area. All works of any size at all had their own senior chemist and chemical staff and any work that arose from the production of gas or by-products at these units devolved upon the local staff. The numbers employed in the central laboratories in Bristol would give a clearer picture of their organisation:

Apart from himself, they had a staff of seven fully-qualified chemists and technologists. Of these, four were gas or chemical engineers and worked 'in the field'; one was an analytical chemist; one a coal and coke chemist, and the remaining one acted as chemist-in-charge and administrative assistant.

The work undertaken was heavily biased towards development and in the 3½ years he had been with the S.W.G.B. the staff had spent at the very least 60% of its time in work associated directly with the introduction of new processes in the area.

The centralising of all the work listed by Mr. Thorne did not seem to be feasible, or even wise in his Board's area. Though he envied him his facilities he did not feel that there were so many arguments in favour of works engineers retaining the services of a chemical staff to be convinced that centralisation of chemical testing brought any overwhelming benefits.

Apart from development, specialised tests on coal and coke, including assays, fire tests, C.A.B. tests and ash analyses were carried out. Paints purchased by the Board were examined and a continuous check was kept on their quality. His Board, too, had a great interest in virgin naphtha and a considerable amount of work was done on those fractions. Gas analysis and tests for special gases, such as those obtained from test runs on new plant, were carried out on a Bone and Wheeler apparatus. These apparatuses were also available at strategic points in the area where any new work was being undertaken and all their staff had been trained to use them.

Referring to gas interchangeability characteristics, much work had been done on the calculated interchangeability coefficients of gases produced within their area. Only tar which was abnormal or came from non-conventional processes was tested in their area laboratory. The Gaz Integrale, Hall Gas and Jones Gas plants in the area, together with more conventional plants which had been modified to take petroleum fractions, had received much attention in the past and they had undertaken some of the more complex and non-routine work associated with them. Here too, had been tar problems to be solved.

Survey of Plant

Their outside staff undertook much work associated with fuel and purification efficiency. Though the form that this work took had already been modified, their staff was available at any time to undertake either a partial or a complete survey of any plant on any works from the retort house up to and including the holder. Clearly such work could only be carried out *in situ* and most units did not have the time nor staff to devote to some of the lengthy tests involved, but by it a new awareness of potential efficiency, particularly in ancillary plant, had been disseminated throughout works staff.

In addition to these surveys in the past few years much field work associated with loss of c.v. on gas compression, dust and grit emission, effluent disposal, cathodic protection, etc, had been undertaken, and in the laboratory they were often called upon to examine and report on the quality of some of the products offered to the purchasing department, *e.g.*, soaps and wrapping materials. Briefly, the work done in the area laboratory can be summarised by saying that it acted as consultants to the Board, mainly to the engineering function, but to the consumer service where necessary.

Geographically, the South-West of England did not lend itself to the transport scheme outlined by Mr. Thorne. More than one vehicle would be needed since there were considerable distances between some of the works—in one case the distance from one major station to the next was about 70 miles—and a cheap method by which samples could be certain of being received within 24 hours of despatch was difficult to envisage.

Not Convinced

He hoped Mr. Thorne would appreciate that though he had perhaps been a little critical of the organisation of a central laboratory, he was naturally bound to think about this in terms associated with the problems he had met personally in his own area. Though completely in favour of centralised research organisations, and an admirer of the manner in which Mr. Thorne has set up what was patently a first-class testing centre, he had not been convinced that such a set-up was necessarily the best way in which to handle routine chemical testing in a gas board's area.

Mr. R. G. Plummer, Production Engineer, Southern Gas Board, speaking as a representative of some of the customers of the Poole central laboratory, said that those customers were the regional production engineers and works superintendents, who were responsible among other things for maintaining their products to the standards desired by the Board. The engineering staff had full confidence in the work of the laboratory and appreciated the ready and able way in which assistance was given to the works staff when special chemical problems arose; especially the enthusiastic and flexible approach made to such problems by Mr. Thorne and his staff. The central laboratory also provided staff to replace absentees in the works laboratories at times of holidays and sickness.

The interchange of staff between works and the central laboratory was most desirable, but it was often difficult to arrange it without interfering with the academic classes which the junior staff attended, usually at Poole, since the larger works were 20 to 60 miles away from the central laboratory.

Correct sampling was, of course, the basis of all laboratory work and this was a works function organised by the works chemists and works superintendents with the chief chemist advising on the methods. The author had stressed the importance of reporting. This had been carefully thought out and the practical result was the form illustrated in the appendix to the paper, where sample report forms were shown. The importance must be emphasised when it was realised that the chief chemist was a member of the production engineers' committee and the monthly summary of all tests was considered by this committee. Close liaison had, therefore, to be maintained at all levels with the chemical staff.

Mr. Thorne had not only been responsible for organising the central laboratory, but took a great part in the layout of the building, which the section would have the opportunity of seeing later in the year. Members would

(*Continued on p. 463*)

Eastern Junior Gas Association

THE USE OF CAST ALUMINIUM ALLOY CONVEYOR BUCKETS IN A GASWORKS

By B. SANTO, *Assoc.M.Inst.Gas E.*
Works Engineer,
Peterborough District, Eastern Gas Board.

THIS paper deals with the introduction of cast aluminium alloy conveyor buckets to a lip bucket conveyor system in a 3 mill. cu.ft. per day Woodall-Duckham retort house, and their performance is compared with that of conventional steel buckets. The economies of the relative bucket systems are considered and details of costs given in the appendices.

The annual tonnage of coal carbonised at present is approximately 60,000 tons with a coke production of 40,000 tons, all of which is handled by two similar L.B. conveyors which encircle the retort house. Each conveyor is capable of handling 45 tons of coal or 25 tons of coke per hour. On the L.B. conveyors there was originally a total of 328 steel buckets which were removed for renewal of lips and patching of holes as required; the cast iron tipping cams were reclaimed from scrap buckets and re-used.

Average Life

Over a period of five years to July, 1955, the usage of steel buckets averaged 260 per year, giving an average bucket life of 15 months. New buckets, less cams, cost £3 each, a total of £780 a year. At first sight the cost of the aluminium buckets was quite alarming and indeed appeared hardly worth contemplating. To convert the conveyor system would require 328 buckets at a price of about £8 each in 1955, almost £2,600 without labour, that is nearly three times the cost of steel buckets. However, three factors claimed for aluminium buckets were predominant:

a. The life of four and a half years.
b. The high scrap value at £2 per bucket.
c. The saving in weight, each bucket being 28½ lb. lighter than a steel one.

A preliminary evaluation of steel and aluminium buckets, excluding labour and maintenance showed, that the annual bucket cost was equivalent to the initial cost less scrap value divided by the life in years.

Thus the annual cost of steel buckets at £3 ÷ 1.25 or £2.4 is less than the annual cost of aluminium buckets at £(8 − 2) ÷ 4.5, or £1.33.

Excluding maintenance costs it appeared, therefore, that after a life of two and a half years the aluminium buckets would begin to show a saving over steel. It was obviously worth while pursuing the matter further, and practical experience was the ultimate test. It was known how long the buckets had to last to pay, but would they last that long? How would the buckets stand up to coke handling with its abrasive action, acidic attack and occasional hot discharge? How would the cast alloy react to continual shock on the dumpers and turnover wheels? What would happen if some 'rogue' iron fouled the conveyor? It would be interesting to find out, but one obstacle remained. The dimensions of bucket required were not standard and could not be supplied without a pattern charge of £90. To avoid any pattern charge at this stage it was decided to order two of the nearest standard design which proved to be the gravity bucket type—*i.e.*, without lips. Steel lips were fitted, the required length (2 in. short) being made up by packing under the lips with wood. These two buckets commenced work in February, 1956, one on each chain, and to keep them company were four brand new steel buckets one on either side to act as controls.

There was a considerable interest when these buckets were put into operation and a series of inspection dates was planned. On bucket life alone they would pay their way after two and a half years of life, three years and a fine saving made—four years a lucrative investment.

Simulated Defect

It was disappointing, to say the least, to be informed after five days that one of the aluminium buckets had been removed having developed a crack along one side. Visual examination indicated a very ominous crack but a more practical examination (penknife and file) showed the suspected crack to be no more than a casting mark which simulated a defect when impregnated with dirt. The bucket was duly returned to the conveyor.

After some eight months, when the buckets were standing up to the conditions very well, we were informed by the manufacturers that suitable buckets with lips cast integrally were now available for our conveyor, and no pattern charge! It was decided to purchase a dozen and so extend the test. The two aluminium buckets (fitted with steel lips) together with the four steel

This is the third of three papers submitted in the short paper competition of the Association in December 1958.

control buckets were inspected after 11 months service and the following observations were recorded:

1. Apart from the required replacement of lips in the case of some of the steel buckets, all buckets were still in a serviceable condition.
2. The amount of coke dust deposited in, and firmly adhering to the steel buckets was noticeably more than the negligible quantities found in the aluminium buckets which appeared to tip more cleanly.
3. There were no obvious signs of wear on the aluminium buckets; the steel buckets, however, were extensively worn and corroded, especially on the interior sloping sides.
4. On the aluminium buckets there was evidence of electrolytic corrosion around the areas of contact with the cast iron cams and steel bolts fixing the cams to the bucket, though this was not extensive.

All the buckets were then returned to the conveyor to continue the test run. The electrolytic corrosion mentioned has been virtually eliminated by painting with zinc chromate paint, though no doubt a bitumastic paint might prove equally effective. After 18 months service the condition of the aluminium trial buckets was remarkably good, where by this time all the control steel buckets had been scrapped. The detailed cost analysis revealed that after a life of 19½ months aluminium buckets would be economical and a bulk order was placed for 100 buckets at £8 7s. 6d. each. The advantage of this bulk order against the previous order for 12 was a saving of 15s. per bucket. It was arranged with the manufacturer that these buckets would be delivered and invoiced in batches of 12, suitably spreading the initial cost. On the completion of the first bulk order this Spring a repeat order was placed. One conveyor was completely changed over to the new buckets by the Summer 1958 and it is expected to complete the second conveyor by the Autumn of 1959, after which date no replacements through normal wear and tear are anticipated before 1961 at the earliest.

The original trial buckets are still in good condition after 34 months service and the 12 with lips cast integrally, put into service over two years ago, have required no maintenance, wear is slight and hence these are already paying their way. Slight grooving of the lips was caused by the guides or plough on the coal and coke chutes, because the lip height of the aluminium buckets was some ¼ in. more than the steel for which the plough was set. Since the depth of these grooves did not exceed ⅛ in., no building up by welding was necessary. When the change over to aluminium buckets was complete the plough was re-aligned and no further grooving has been observed.

To date two broken buckets have been returned to the makers following the fouling of one conveyor by a coke extractor hanger bar. These two buckets were badly damaged, both with broken sides. The manufacturers condemned them and credited us with £3 18s. 11d. or £1 19s. 5½d. each, rather less than the original estimate, probably because the buckets were not complete. During the same incident other buckets were slightly buckled and these were hammered out to correct shape without difficulty and without any apparent fracture.

The cost survey shows that a steel bucket costs £4 3s. 4d. annually, whereas an aluminium alloy bucket costs from £2 8s. 3d. on a known 2.8 year life or £1 10s. 0d. a year on an anticipated 4½-year life, giving a total annual saving on the 328 buckets of £577 or £875 respectively. On tonnage handled this means a reduction from 3.3d. per ton for steel to 1.9d. or 1.2d. for alloy—a possible saving of up to 2.1d. per ton of material handled.

The advantages of aluminium alloy buckets over steel can be summed as follows:

1. Life of at least 2.8 years and probably 4½ years.
2. High scrap value.
3. Saving in weight resulting in, (i) less wear and tear on conveyor system—2.1 tons less on each conveyor, (ii) easier handling when renewing a length of conveyor chain, wearing strips, etc.
4. No routine maintenance found necessary to date.
5. Cleaner tipping.
6. Saving of £875 per year or 2.1d. per ton of material handled.

A Central Laboratory

(*Discussion, concluded from p. 459*)

be able to judge for themselves that here was a first-class industrial laboratory.

His general conclusion was that they were well satisfied with the service given them by the policy of developing the central laboratory and that first-class chemical knowledge had been made available at a reasonable cost to all the Board's works.

Mr. H. L. G. Boot, Chemist-in-charge, Central Laboratory, Southern Gas Board, said that when planning of the new central laboratory had been started, Mr. Thorne had arranged that he should visit the laboratories of some of the other gas boards. These visits had been most helpful since he had gained much useful information about the type of laboratory furniture needed and about apparatus for specialised jobs. Dr. Dent's team had removed all the benches and equipment when they had left Poole; so except for one laboratory bench, obtained from another works, all the laboratory furniture was new. In the main analytical laboratory the arrangement of peninsular benches had been adopted. These came off wall benches from under the windows. Such an arrangement gave spacious bays with plenty of light to each bench. The wall benches were each provided with a sink and had Vitrolite insets so that titrations might be carried out. All the laboratories had compressed air laid on, and there were services for compressed oxygen to the glass blowing bench and to the bomb calorimeter room. In each laboratory there were metal waste bins on special hinges in box casing units, which did away with the need for dustbins.

Mr. Thorne had referred in some detail to the work done in the laboratory and he would like to draw attention to one or two points which illustrated the advantages to be gained from a central laboratory. The same arguments that applied to the centralised testing of refractories, lubricating oils and similar materials also applied to the centralised testing of anything so long as it was possible to transport the sample without the results being wanted immediately. He, therefore, agreed with Mr. Thorne that centralised testing allowed a high load factor to be maintained on the equipment used. This was clearly more important as the cost of equipment rose.

Mr. H. M. Lawrence, Materials Handling, Transport and Coal Manager of the Southern Gas Board, inspects the special mounting of the rear tipping trunnions which give the vehicle its unusually low centre of gravity.

Six-wheeled tipper for S.G.B. fleet

LATEST addition to the Southern Gas Board transport fleet is a large-capacity Ford Thames Trader ten-ton tipper incorporating a number of features designed by the Board's transport department. It is the first Thames Trader six-wheeled lorry to be produced.

The chassis of a normal seven-ton tipper has been lengthened and strengthened to accommodate a third axle. With this extra length it has been possible to fit a light alloy body 17 ft. long, 6 ft. 11 in. wide and 5 ft. 9 in. high, capable of carrying a truck load of 25 cu. yards. As a safeguard against overloading on heavy materials, there is an inspection door on each side of the body to enable the driver to check the levels. The unusually low centre of gravity of the body is obtained by mounting the rear tipping trunnions on outrigger brackets, fabricated for the purpose, bolted outside the chassis members. This also ensures continuous contact between the body sub-frame and chassis member.

Tipping gear of the new lorry.

The vehicle, fitted with a Ford six cylinder diesel engine and Edbro 4 LNS power operated hydraulic twin vertical ram end tipping gear, is operating in the Board's Bournemouth region.

Its advantages are economy with greater carrying capacity. The introduction of the new Trader has created enthusiasm in the haulage industry generally because of the great variety of uses to which the vehicle can be adapted.

Customers were able to view the first of these six-wheeled Traders—built by Ford of Dagenham in conjunction with County Commercial Cars, of Fleet, at Thames House, Chandlersford, before it was taken over by the Southern Gas Board on January 15.

The lorry was handed over to Mr. H. M. Lawrence, Manager of the Southern Gas Board transport division, and his assistant, Mr. G. Blundell, by Mr. F. T. Phipps, Manager of the fleet sales division of the Ford Motor Company.

There to watch the handover were Mr. H. T. Francis, General Manager and Director of Percy Hendy Ltd., and Mr. R. Tapp, Director of County Commercial Cars.

The first of these new type Traders is easy to spot on the Hampshire roads—it is painted in the Southern Gas Board's distinctive flame-red colour.—*Ford of Dagenham.*

Trade news

HEATER PROVIDES CONSTANT FLOW AND TEMPERATURE

A NEW gas instantaneous water heater with thermostatic control, to be known as the Main Apollo, opens up a unique field for water heating by gas by providing unlimited hot water at a constant flow and at a constant temperature.

Unique advantages

Installed as a sink water heater, supplied from either main or tank, the Apollo provides an instant flow of hot water at 0.5 gal. per minute, but unlike the conventional instantaneous heater, this flow is always at a controlled temperature of 145°F. Outlet temperature is maintained irrespective of fluctuations in the water supply temperature, the gas rate necessary to produce an outlet temperature of 145°F. being automatically adjusted by the thermostat. Thus two unique advantages of the Apollo are immediately apparent: (*a*) Output remains at a constant useful temperature even in the coldest weather; (*b*) less gas is used during the warmer months when the temperature of the water supply to the heater is higher.

The Apollo affords yet a third advantage in that by reason of its unvarying outlet temperature it can safely be used to provide a simple and economical hot water supply for showers or for use in hairdressing establishments, without the necessity of employing complex and costly apparatus.

The Main Apollo.

Revolutionary aspect

The most revolutionary aspect of the Apollo is its suitability for use as a booster to an existing hot water storage system. Connected by a tee joint to a draw-off pipe of the system, for example at the sink, it will automatically boost the water passing through it to 145°F.

Once again NEW WORLD PRODUCT OF Radiation Ltd **leads the way**

RADIATION GROUP SALES LTD., 7 STRATFORD PLACE, LONDON, W.1

In these circumstances, the temperature rise necessary being less than if the water were cold, the amount of gas used by the Apollo is correspondingly reduced by the thermostat.

During periods when the hot water system is not in use, the Apollo operates to all intents and purposes as an ordinary sink water heater but with the difference—during the warmer periods of the year fortuitous heat absorbed by the system will result in a reduced gas consumption in the Apollo.

Simple, reliable

The incorporation of a thermostatic control has not, as might have been expected, resulted in design complications or produced maintenance difficulties. In fact, say the makers, the opposite is the case as a simple, reliable thermostat replaces the orthodox flow valve with its complicated diaphragms, stuffing boxes, push rods and small bore channels. In addition, a novel and simple combined gas and water control is used whereby, irrespective of the position of the thermostat, the gas is mechanically prevented from passing to the burner until water is flowing.

White or cream

The Apollo is available with white or cream stoved enamelled casing, black vitreous enamelled products deflector and red plastic water and pilot tap handles.—*Main Water Heaters, Ltd., 48, Grosvenor Gardens, London, S.W.1.*

ROTATING SCREEN FLUID BATH FILTERS REMOVE DUST, DIRT AND NAPHTHALENE

The Elmac rotating screen fluid bath gas filter.

ELMAC rotating screen fluid bath gas filters, for which patents have been applied, are designed for insertion in pipelines in order to remove dust, dirt, grit, sludge and naphthalene from the gas passing through the lines.

Rotating screen

This is achieved by use of a rotating screen which comprises a series of blades or vanes set at a pre-determined angle and supported between end plates. Rotation of the screen, is effected by the normal flow of gas through the filter and, during this process, the blades pass through a depth of fluid in the filter sump and then upwards and across the aperture where the gas enters the filter.

Unwanted matter is collected upon the freshly-wetted blades as the gas slides across their surfaces. This process is repeated on the reverse side of the blades as the gas leaves the rotor. Filtering action is positive and assured by the force with which the gas strikes the blades in order to turn the rotor. The unwanted matter adhering to the blades is in turn washed off as the blades are immersed in and dragged through the fluid in the sump leaving the blades in a clean, freshly-wetted state as they come up again to pass across the inlet aperture.

The sump itself is of such shape and capacity as to ensure that the unwanted matter sinks to the bottom and that long periods of running are possible before draining and renewal of the fluid becomes necessary. This servicing of the unit is simple and may be accomplished in a matter of minutes. An inspection window in the side of the filter allows checking of the action of the rotor and also visual inspection of the state of the fluid so that decision when to service is simplified.

Suitable mixture

Various fluids may be used to suit individual requirements. A particularly suitable mixture for coal gas appears to be that of two parts of SAE 20 oil to one part of paraffin. This mixture is effective in removing naphthalene.

Elmac rotating screen fluid bath gas filters are made in three sizes to fit 3-in., 4-in., and 6-in. pipe-lines with respective capacities of 3,000/8,000, 6,000/15,000 and 15,000/35,000 cu.ft. per hour. For capacities in advance of 35,000 cu.ft. per hour it is recommended that two or more units be used as necessary fitted side by side with provision for isolating each unit should a very large range of flow be called for.

Secondary service

A secondary service is also automatically supplied by the filter, consisting of the provision of a limited oil mist lubrication to moving parts located in the system at points beyond the exit side of the filter.—*Elliots (Newark), Ltd., Northern Works, Newark-on-Trent, Notts.*

Record sales for Electrolux

LAST year was one of record sales for Electrolux, Ltd. Greater public acceptance of domestic refrigeration was coupled with the relaxation of credit restrictions by the Government. An even wider demand for refrigeration in the home is confidently predicted.

Newcomer to the range of silent, absorption type refrigerators originated by Electrolux is the model L.26. Designed for the lower price market, it has been possible to offer it at the attractive price of 47 guineas as a result of two years of painstaking research into new materials, and new methods of production.

The exterior lines of the model L.26 follow the styling of the L.37. Compactly planned, with 5½ sq. ft. of shelf space, the L.26 will hold enough for most families yet occupies surprisingly little kitchen space. Approximate dimensions are: height 2 ft. 8 in., width 1 ft. 8¾ in., depth 1 ft. 11¼ in., and the internal volume 2½ cu.ft. The door has four shelves—one serves as an egg rack—and all can easily be removed for cleaning.

The L.26 refrigerator.

Nine pint bottles of milk can be stored on the upper shelf. Frozen food can be kept in the ice compartment which normally holds the ice-tray providing 14 cubes. This tray has a quick-release, flexible ice-cube divider. The all-steel shell is in sparkling white or cream enamel with the food compartment in ice-blue and with tasteful decoration in ice-blue and gold. The new-type door catch, with feather-light closing, has a sturdy handle in resilient nylon.

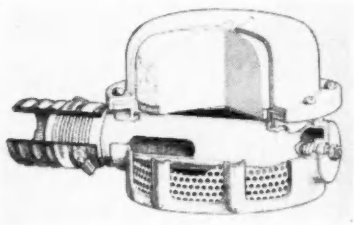
The Electrolux TrayTop has firmly established itself as a successful selling feature. The L.26 has its own attractive, colourful tray which serves a dual purpose . . . as a tray for carrying food from the refrigerator . . . and as additional working surface in kitchens where space is at a premium. With a base in heat-resisting Hardec it is durable and easily cleaned. The edging is in colours to match the cabinet while the base may be obtained in either red or blue. As with the L.37, the TrayTop is a separate purchase.—*Electrolux, Ltd., 153-155, Regent Street, London, W.1.*

Strainer takes in water, avoids floating matter and silt

THE Dolphin floating suction strainer by Megator Pumps & Compressors Ltd. is claimed to meet a need by users of pumps that have to draw water from just below the surface so as to avoid taking in either sand or silt from the bottom, or floating matter from the surface.

Another problem is the tendency for air to be entrained into the pump suction due to vortex formation. In an ordinary centrifugal pump this phenomenon can put the pump completely out of action. Experience to date has indicated that the Dolphin does prevent formation of vortices, first, by cylindrical disposition of the entry holes and secondly, because any tendency to vortex formation is automatically countered by a slight sinking of the strainer so that a vortex-free position of equilibrium is established.

The Dolphin strainer is light and compact and readily fitted to the end of the suction hose. It is made in four sizes, for 1½-in., 2-in., 3-in., and 4-in. hoses. In the design, on which world-wide patents are granted or pending, correct analysis of the balance and buoyancy of the parts, and the original feature that the tube to which the hose is directly attached can rotate freely in the body of the strainer,



Cutaway view of the Dolphin floating suction strainer.

prevent the strainer twisting out of position or overturning.

The float chamber is filled with a moulding of expanded polystyrene foam, which provides millions of separate water-tight air cells so that buoyancy cannot be lost as a result of accidental damage.

The strainer, say the makers, is ideally suited to conditions where there is not sufficient depth of water for it to float; it still tends to keep its upright position regardless of twisting of the hose. Also, as the bottom of the strainer is flat and all the entry holes are in the sides and as it is extremely light, there is no tendency to sink or to be sucked down into the sand or silt on which it may be resting.

The entire strainer is constructed from plastics and austenitic stainless steel, so that it is for most practical purposes immune from corrosion. The plastics used are of an extremely tough and resilient type, so that the strainer is well able to withstand very rough handling and its rounded shape, flat bottom and freedom from projections make it well adapted to being hauled about on the end of the hose.—*Megator Pumps & Compressors Ltd., 43, Berkeley Square, London, W.1.*

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BTR INDUSTRIES LTD., engineers in rubber and thermoplastic materials, announce the publication of a new illustrated hose catalogue intended for users of all kinds of hose—from the slender tubings of delicate instruments to suction hose of over 18 in. internal diameter.

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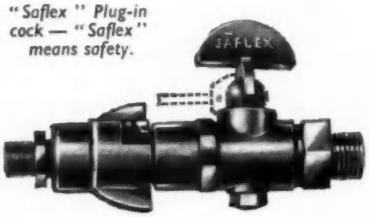

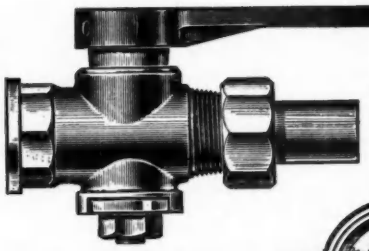

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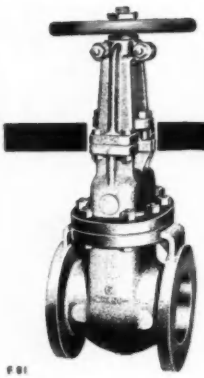

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